

IN THE CLAIMS:

Please amend claims 1, 2, 5-12, 19, 20, 24, 28-31 and 34, and add new claims 42 and 43, as follows:

1. (Currently Amended) A nanoscale grasping device for the manipulation of microscopic objects, said nanoscale grasping device comprising a substrate, ~~at least three electrodes on said substrate, and~~ at least three elongate electrically conductive grasping elements each having first and second opposite ends, with said first ends attached to said substrate and making electrical connections with an alternating current source ~~said electrodes~~ and said second ends projecting outwardly away from said substrate, whereby said second ends are free to be attracted or repelled ~~electrostatically~~ relative to one another in response to application of ~~voltages~~ alternating current to said ~~electrodes~~ elements.

2. (Currently Amended) The nanoscale grasping device of claim 1 wherein said at least three grasping elements ~~comprise~~ are nanofibers.

3. (Previously Presented) The nanoscale grasping device of claim 1 wherein at least one of said grasping elements comprises a carbon nanotube.

4. (Previously Presented) The nanoscale grasping device of claim 3 wherein said carbon nanotube is integral with one of said electrodes.

5. (Currently Amended) The nanoscale grasping device of claim 2 wherein at least one of said grasping elements is ~~adapted~~ configured to bind specific molecules thereto.

6. (Currently Amended) The nanoscale grasping device of claim 2 wherein at least one of said grasping elements is ~~adapted~~ configured to bind particles thereto.

7. (Currently Amended) The nanoscale grasping device of claim 1 comprising ~~at least four electrodes on said substrate and~~ at least four grasping elements having their first ends ~~attached to and~~ making electrical connections with said alternating current source, different ones of said at least four electrodes, whereby said second ends of said grasping elements can be moved

toward and away from one another by electrostatic forces in response to ~~voltages~~ alternating current applied to said at least four ~~electrodes~~ grasping elements.

8. (Currently Amended) The nanoscale grasping device of claim 7 consisting of ~~four electrodes and~~ four grasping elements, with said four grasping elements ~~electrodes~~ arranged in a rectangular pattern on said substrate.

9. (Currently Amended) The nanoscale grasping device of claim 7 ~~further including~~ wherein said alternating current source is configured to apply an oscillating voltage ~~applied~~ to at least one of said grasping elements.

10. (Currently Amended) The nanoscale grasping device of claim 7 further including an oscillating voltage applied to at least first and second ones of said grasping elements, ~~via said electrodes,~~ with the oscillating voltage applied to said first one of said grasping elements ~~being~~ in phase with the oscillating voltage applied to said second one of grasping elements.

11. (Currently Amended) The nanoscale grasping device of claim 7 ~~further including~~ wherein said alternating current source is configured to apply an oscillating voltage applied to first and second ones of said grasping elements via said electrodes, wherein the oscillating voltage applied to said first one of said grasping elements is substantially out of phase with the oscillating voltage applied to said second one of the said grasping elements.

12. (Currently Amended) The nanoscale grasping device of claim 1 ~~further including~~ wherein said alternating current source is configured to apply voltages on to said electrodes elements so as to cancel or enhance resonant vibration of said grasping elements.

13. (Canceled)

14. (Canceled)

15. (Canceled)

16. (Canceled)

17. (Canceled)

18. (Canceled)

19. (Currently Amended) The nanoscale grasping device of claim 1 comprising ~~three of said electrodes and three of said grasping elements, and further including~~ wherein said alternating current source is configured to apply an oscillating voltage at each of said three elements ~~electrodes~~ with the voltage at each element ~~electrode being~~ substantially 120 degrees out of phase with the voltage at the other ~~electrodes~~ elements.

20. (Currently Amended) The nanoscale grasping device of claim 1 wherein said grasping tool comprises ~~four electrodes and four grasping elements, and further including~~ wherein said alternating current source is configured to apply a steady state voltage at two neighboring electrodes and different voltages at the other two electrodes.

21. (Canceled)

22. (Canceled)

23. (Canceled)

24. (Currently Amended) The nanoscale grasping device of claim 7 wherein said grasping tool comprises ~~four electrodes and~~ four grasping elements, and further wherein said alternating current source is configured to apply an oscillating voltage ~~voltages are applied~~ to each of said grasping elements, ~~via said electrodes,~~ with ~~each~~ said oscillating voltage applied to each of said grasping elements ~~being~~ substantially 90 degrees out of phase with ~~the other oscillating voltages~~ one another.

25. (Canceled)

26. (Canceled)

27. (Canceled) ~

28. (Currently Amended) The nanoscale grasping device of claim 1, wherein at least one of said grasping elements is

~~adapted~~ configured for use as a probe in atomic force microscopy and scanning probe microscopy techniques.

29. (Currently Amended) The nanoscale grasping device of claim 1, wherein at least one of said grasping elements is ~~adapted~~ configured for use in performing electrical and mechanical analysis of the sample.

30. (Currently Amended) A nanoscale grasping device according to claim 1 wherein said alternating current source is configured to apply ~~further including~~ oscillating voltages to ~~on~~ said grasping elements ~~electrodes for canceling or enhancing so~~ as to cancel or enhance resonant vibration ~~of said grasping elements~~ thereof.

31. (Currently Amended) A nanoscale grasping device comprising a substrate, three elongate, fibrous, electrically conductive grasping elements projecting outwardly away from said substrate, and three electrodes on said substrate ~~for coupling~~ configured to provide an oscillating voltage to each of said three elongate, fibrous, electrically conductive grasping elements, whereby to cause the free ends of said electrically

conductive grasping elements to be attracted or repelled relative to one another.

32. (Previously Presented) A nanoscale grasping device according to claim 31 wherein said grasping elements are carbon nanotubes.

33. (Previously Presented) A nanoscale grasping device according to claim 32 wherein said carbon nanotubes have a diameter in the range of about 20 to about 150 nm and a length in the range of about 20 to about 40 nm.

34. (Currently Amended) A nanoscale grasping device consisting of a substrate, at least three ~~or more~~ fibrous electrically conductive grasping elements having first ends and second ends, the first ends in electrical connection with ~~that are fixed to~~ separate electrodes on the substrate, and the second free ends that are spaced projecting outwardly from the substrate, and an alternating current source in electrical connection with the separate electrodes on the substrate, each of said grasping elements ~~being~~ separated from one another ~~each other grasping element~~ by a gap, whereby said ~~free~~ second ends



~~may~~ are configured to move in a direction to increase or decrease said gaps as a function of electrostatic attraction caused by ~~voltages~~ alternating current applied to said electrodes.

35. (Withdrawn) A method for grasping small objects comprising:

providing a nanoscale grasping device that is characterized by a substrate, three or more elongate electrically conductive grasping elements having first free ends that are spaced from said substrate and second ends that are fixed to and form electrical connections with individual electrodes attached to said substrate; and

positioning said grasping device so that said free ends of said grasping elements surround an object to be grasped; and

applying electrical voltages to said electrodes so as to cause said free ends to move into engagement with said object as a consequence of electrostatic attraction between said grasping elements caused by the applied voltages.

36. (Withdrawn) Method according to claim 35 wherein an oscillating voltage is applied to each of said grasping elements.

37. (Withdrawn) Method according to claim 35 wherein the phases of the oscillating voltages are substantially different on all of the grasping elements.

38. (Withdrawn) Method according to claim 35 wherein said grasping device comprises three grasping elements.

39. (Withdrawn) Method according to claim 35 wherein said grasping device comprises four grasping elements.

40. (Withdrawn) Method according to claim 35 wherein said grasping elements are nanofibers.

41. (Withdrawn) Method according to claim 35 wherein said grasping elements are carbon nanotubes.

42. (New) The nanoscale grasping device of claim 1 wherein said substrate and said grasping elements form a polygon with said second ends of said at least three elongate electrically conductive grasping elements positioned together with one another.

43. (New) The nanoscale grasping device of claim 1 wherein said alternating current source is configured to apply an oscillating voltage to one of said at least three elongate electrically conductive grasping elements, and further wherein said alternating current source is configured to apply another voltage to the other ones of said at least three elongate electrically conductive grasping elements.